

Notice of Allowability

Application No.

10/624,484

Examiner

Shaima Q. Aminzay

Applicant(s)

KIM, JAE-JIN

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to July, 23, 2003.
2. ☒ The allowed claim(s) is/are 1-14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Allowable Subject Matter

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Shin, Reg. No. 53,859 on March 30, 2006 (Tel.: 202-530-4470).

Examiner's Amendment

1. The application has been amended as follows:

In Claim 1, line 10, the phrase "receiversfordemodulating" is changed to "receivers for demodulating"; in line 12 the phrase "receiverfor" is changed to "receiver for"; in line 19 the phrase "controllerwhich" is changed to "controller which".

In Claim 4, line 8, the phrase "receiversfordemodulating" is changed to "receivers for demodulating"; in line 10 the phrase "receiverfor" is changed to "receiver for"; in line 16 the phrase "controllerwhich" is changed to "controller which".

In Claim 5, line 9, the phrase "receiversfordemodulating" is changed to "receivers for demodulating"; in line 11 the phrase "receiverfor" is changed to "receiver for"; in line 18 the phrase "controllerwhich" is changed to "controller which".

The applicant representative, Michael Shin, authorized changing the above phrases in independent claims 1, 8, and 5.

The Examiner's amendment was necessary to comply with 37 CFR 1.75 and MPEP 706.03 (k).

(End of Examiner's Amendment)

2. Claims 1-14 are allowed.

Reasons for Allowance

3. The following is an examiner's statement of reason for allowance:

None of the prior art of the record either singularly or in combination teaches or fairly suggests controlling a duplication structure of a base station transceiver subsystem with N number of sectors and M number of frequency assignments.

Cited reference Kim (Kim et al., U. S. Publication 2002/0019,235) teaches a channel allocation system for use in a wireless communication system includes a controller with number of combiners and switchable power divider/combiners,

channel allocation system allocates frequency allocations to number of sectors and base, the switches selectively connect the output signals to the switchable power divider/combiners amplify signals inputted thereto at the same level in amplitude, both the number of total frequency allocated to the base station transceivers and the related devices can be reduced without changing its service coverage area.

However, the reference does not expressly teach the following underlined limitations:

“An apparatus for controlling a duplication structure of a Base station Transceiver Subsystem (BTS), the BTS having N number of sectors including a first sector to an Nth sector and M number of Frequency Assignments (FAs) including a first FA to an Nth FA, the apparatus comprising: N number of power dividers, each of which has M number of output ports and one redundancy output port, each of the power dividers dividing an input signal into equal-power signals each of the equal-power signals having $1/(M+1)$ power and outputting the power-divided signals through the M number of output ports and one redundancy output port; (N.times.M) number of receivers for demodulating signals outputted from the output ports of the N number of power dividers, respectively; a redundancy receiver for demodulating a signal which has been processed by and is switched over from one of the (N.times.M) number of receivers according to a predetermined control; a switch connected to each of redundancy output ports of the N number of power dividers, the switch connecting a signal outputted from

one of the redundancy output ports to the redundancy receiver according to a predetermined control; and a controller which monitors operation states of the (N.times.M) number of receivers and controls the switch to connect a redundancy signal to the redundancy receiver when the controller detects one abnormally-operating receiver from among the (N.times.M) number of receivers, the redundancy signal being outputted from a redundancy output port of a power divider connected to the abnormally-operating receiver” as disclosed in claim 1.

“An apparatus for controlling a duplication structure of a Base station Transceiver Subsystem (BTS), the BTS having M number of Frequency Assignments (FAs) including a first FA to an Nth FA, the apparatus comprising: a power divider having M number of output ports and one redundancy output port, the power divider dividing an input signal into equal-power signals each having $1/(M+1)$ power and outputting the power-divided signals through the M number of output ports and one redundancy output port; M number of receivers for demodulating signals outputted from the power divider, respectively; a redundancy receiver for demodulating a signal which has been processed by and is switched over from one of the M number of receivers according to a predetermined control; a switch connected to the redundancy output port, the switch connecting a signal outputted from the redundancy output port to the redundancy receiver according to a predetermined control; and a controller which monitors operation states of the M number of receivers and controls the switch to connect a redundancy signal to the redundancy receiver when the controller

detects one abnormally-operating receiver from among the M number of receivers, the redundancy signal being outputted from the redundancy output port” as disclosed in claim 4.

“An apparatus for controlling a duplication structure of a Base station Transceiver Subsystem (BTS), the BTS having three sectors including an alpha sector to a gamma sector and four Frequency Assignments (FAs) including a first FA to a fourth FA, the apparatus comprising: three power dividers, each of which has four output ports and one redundancy output port, each of the power dividers dividing an input signal into equal-power signals each having 1/5 power and outputting the power-divided signals through the four output ports and one redundancy output port; twelve receivers for demodulating signals outputted from the output ports of the three power dividers, respectively; a redundancy receiver for demodulating a signal which has been processed by and is switched over from one of the twelve receivers according to a predetermined control; a 4:1 switch connected to each of redundancy output ports of the three power dividers, the 4:1 switch connecting a signal outputted from one of the redundancy output ports to the redundancy receiver according to a predetermined control; and a controller which monitors operation states of the twelve receivers and controls the 4:1 switch to connect a redundancy signal to the redundancy receiver when the controller detects one abnormally-operating receiver from among the twelve receivers, the redundancy signal being outputted from a redundancy output port of a power divider connected to the abnormally-operating receiver” as disclosed

in claim 5.

“A method for controlling a duplication structure of a Base station Transceiver Subsystem (BTS), the BTS having N number of sectors including a first sector to an Nth sector and M number of Frequency Assignments (FAs) including a first FA to an Nth FA, the method comprising the steps of: dividing an input signal into equal-power signals via N number of power dividers, each of which has M number of output ports and one redundancy output port, and each of the equal-power signals having $1/(M+1)$ power; outputting the power-divided signals through the M number of output ports and one redundancy output port; demodulating signals output from the output ports of the N number of power dividers, respectively via (N.times.M) number of receivers; demodulating a signal which has been processed by and is switched over from one of the (N.times.M) number of receivers according to a predetermined control via a redundancy receiver; connecting to each of redundancy output ports of the N number of power dividers via a switch, the switch connecting a signal output from one of the redundancy output ports to the redundancy receiver according to a predetermined control; and monitoring operation states of the (N.times.M) number of receivers and controlling the switch to connect a redundancy signal to the redundancy receiver when the controller detects one abnormally-operating receiver from among the (N.times.M) number of receivers via a controller, the redundancy signal being outputted from a redundancy output port of a power divider connected to the abnormally-operating receiver” as disclosed in claim 8.

“A method for controlling a duplication structure of a Base station Transceiver Subsystem (BTS), the BTS having M number of Frequency Assignments (FAs) including a first FA to an Nth FA, the method comprising the steps of: dividing an input signal into equal-power signals each having $1/(M+1)$ power via a power divider having M number of output ports and one redundancy output port; outputting the power-divided signals through the M number of output ports and one redundancy output port; demodulating signals output from the power divider, respectively via M number of receivers; demodulating a signal which has been processed by and is switched over from one of the M number of receivers according to a predetermined control via a redundancy receiver; connecting to the redundancy output port via a switch, the switch connecting a signal output from the redundancy output port to the redundancy receiver according to a predetermined control; and monitoring operation states of the M number of receivers and controlling the switch to connect a redundancy signal to the redundancy receiver when the controller detects one abnormally-operating receiver from among the M number of receivers via a controller, the redundancy signal being output from the redundancy output port” as disclosed in claim 11.

“A method for controlling a duplication structure of a Base station Transceiver Subsystem (BTS), the BTS having three sectors including an alpha sector to a gamma sector and four Frequency Assignments (FAs) including a first FA to a fourth FA, the method comprising the steps of: dividing an input signal into equal-power signals each having $1/5$ power via three power dividers, each of which has

four output ports and one redundancy output port; outputting the power-divided signals through the four output ports and one redundancy output port; demodulating signals output from the output ports of the three power dividers, respectively via twelve receivers; demodulating a signal which has been processed by and is switched over from one of the twelve receivers according to a predetermined control via a redundancy receiver; connecting to each of redundancy output ports of the three power dividers via a 4:1 switch, the 4:1 switch connecting a signal output from one of the redundancy output ports to the redundancy receiver according to a predetermined control; and monitoring operation states of the twelve receivers and controlling the 4:1 switch to connect a redundancy signal to the redundancy receiver when the controller detects one abnormally-operating receiver from among the twelve receivers via a controller, the redundancy signal being output from a redundancy output port of a power divider connected to the abnormally-operating receiver” as disclosed in claim 12.

For these reasons, independent claims 1, 4, 5, 8, 11, and 12 are allowed. Claims 2-3, 6-7, 9-10, and 13-14 which depend from independent claims 1, 5, 8, and 12 are allowed under the same reasons set forth in claims 1, 5, 8, and 12.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled
"Comments on Statement of Reasons for Allowance."

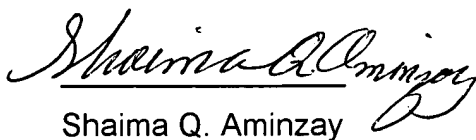
Conclusion

The prior art made of record considered pertinent to applicant's disclosure, see PTO-892 form.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shaima Q. Aminzay whose telephone number is 571-272-7874. The examiner can normally be reached on 7:00 AM -5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shaima Q. Aminzay
(Examiner)

March 31, 2006



NICK CORSARO
PRIMARY EXAMINER

Nay A. Maung
(SPE)